

## Special Contribution

# Psycholinguistics, Sociolinguistics, Neurolinguistics, and Mindfulness-Based Stress Reduction in Language Learning

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I am honored to be able to speak to you today and I would like to thank the Department of Policy Science and the Graduate School of Language Education and Information Science, and all others involved, for making this lecture possible.

Perhaps nothing is more exasperating than to have to sit through a lecture and understand little. Therefore, let's walk slowly through several favorite topics and points stemming from my main lecture classes in Graduate school. Two of these classes I teach are Applied Linguistics and Second Language Acquisition. I will concentrate on these two. The Applied Linguistics class, however, was an interactive class which included some reading and discussion; therefore, most of what I will deal with today was presented in a course labeled "Second Language Acquisition," which upon some examination soon, might have been more appropriately labeled "Second Language Learning."

I've been germinating the content of this lecture for several months. In my teaching linguistics at the graduate school, I have tried to cover different perspectives in the areas of psycholinguistics and sociolinguistics which students could research and then possibly apply to their future work, whether it be in teaching or in some other field.

I have also been including the fields of neurolinguistics and neuropsychology in my teaching Second Language Acquisition during the last few years, especially in the last part of my syllabus. Even though this area is difficult to apply concretely to any area of direct classroom study, I have tried to open the door to the subject matter in such a way that students could take from this field something, often something directly connected with their own self, and improve their own lives as well as opening the eyes of their students, if they plan to go on into teaching. However, brain research cannot prescribe what we should teach, nor can it prescribe how we should organize

classes with complex sequences, nor how we should work with students with special needs, something I will discuss at some length later.

So these are the three dimensions of linguistics, psycholinguistics, sociolinguistics and neurolinguistics which I will discuss. First we will look at the field of linguistics from the perspective of psycholinguistics and soon after, sociolinguistics.

I would like to review some relevant points from these areas by applying the phrase, **‘Students, you might remember...’** to what I lectured on in class so that some students in the audience might be able to piece together some threads of what I covered ‘once upon a time.’

**“Students, you might remember”** how we spent time on Noam Chomsky at the beginning of both courses in Applied Linguistics and Second Language Acquisition. Professor Chomsky, of MIT, is still going strong, with a full speaking schedule. Last year in the spring he visited Paris, and he spoke authoritatively on contemporary issues, indicating that his extraordinary intelligence and commitment to social change are as undimmed as ever. Born in 1928 and now into his eighties, his schedule in France would have exhausted a man half his age. Chomsky nevertheless appeared to take it in his stride as he answered questions from the audience late into the evening at two events, speaking continuously for several hours in wide-ranging lectures on American foreign policy, contemporary world politics, and the situation in regions of the world of which he has made a special study, such as Latin America, the Middle East and Southeast Asia.

He came to speak at Seika Women’s College, here in Kyoto a few years ago, and the audience was packed with students sitting on the floor and in the corridors. My family was able to attend, and Alexa, our youngest daughter, had the unforgettable chance to ask him some questions in an interview about Cuba and Nicaragua.

In my classes I always explain how I was first brought to study Chomsky with his book, *Syntactic Structures*, published in 1957, and which I first came into contact with in Linguistics class at Kansas University in 1970, 13 years after he wrote it. In those days Chomsky was brilliant for us, although we all had trouble with the transformational grammar. As Martin Haspelmath tells us, in the 60s and 70s, the field of linguistics was obsessed with syntax and its relation to semantics, and many of the students entering the field didn’t have solid grounding in anything outside of that. Joseph H. Greenberg’s (1963) work on word order universals was just as remote in spirit from the widely popular generative syntactic model as his phonological work was from generative phonology, but the potential relevance of his word order universals to Chomsky’s “Universal Grammar” approach to syntax was evident to everyone (Haspelmath, viii). **Students, you might remember “Universal Grammar,”** and I am sure you will remember my wife, Dr. Françoise Ratzlaff, coming to lecture from Osaka University on Greenberg, on etymology, and on typology.

Credited to Noam Chomsky, the theory of Universal Grammar suggests that some rules of grammar are hard-wired into the brain, and manifest without being taught (www.freebase).

As human beings we are all born with the capability for language. And within those capabilities there are some that are shared by some languages and some that are not. As Beebe tells us, those capabilities that are shared by all languages, or 'rules,' are called the universal grammar (UG) (p. 29). That is, there are properties that all possible human languages have in common. These rules or descriptions are already within the child's language 'organ,' as Chomsky called it, or the Language Acquisition Device, (LAD), which **Students, you might remember.**

Steven Pinker tells us that most of these rules come in the form of "if a language has a feature X, it will also have the feature Y." For example, rules that are widely considered as part of UG include:

If a language is head-initial (like English), it will have prepositional phrases;

if and only if it is head-final (like Japanese) will it have post-positional phrases. Perhaps the more easily remembered rule is this: If a language has a word for purple, it will have a word for red (*The Language Instinct*, 234).

In my classes here at Ritsumeikan, I've also dealt with Chomsky in relation to B.F. Skinner, who was really the forerunner for the Pattern Practice approach which I was doomed to teach as a T.A. at Kansas University. This was my first teaching experience.

Chomsky's influence had not quite reached the language teaching field yet (he wasn't really interested I suppose in Applied Linguistics) and Skinner's theories for the stimulus-response approach, responsible for the habit formation drills which preceded the earliest audio-lingual methods, were in vogue. I had to teach 40 foreign students at the University of Kansas, spending the entire class time reading patterns which the students would repeat and repeat and repeat. That is the way my teaching started! I haven't stopped teaching since 1970, and now in 2011, it is more than 40 years of teaching English. Pattern Practice evolved into other methods and my teaching became easier.

Perhaps then I saw that there would be some changes coming, and that kept me in the EFL field. Something was there I hoped which would allow for more communication. And even now in Japan, communication-based curricula are being implemented, albeit slowly, into the language learning classrooms by the *Monbukagakusho* (Ministry of Education, Culture, Sports, Science and Technology). "English using English" is the motto for the 2013 goal, that is, in two years. We'll have to wait and see.

In psycholinguistics, I've tried to help students determine what psychological characteristics contribute to successful second language acquisition and learning. We try to make the distinction between what has been learned formally, that is what we call *learning*, and what has been acquired naturally, that is *acquisition*. This distinction by Steven Krashen caused some misunderstandings in the field of SLA (for example it's difficult to say that I'm teaching SLA, when it should be called SLL). Yet students learn it from a historical perspective, and dutifully wade through Krashen's

Monitor Model and his 5 hypotheses (Mitchell, 176).

**Students, you might remember these:** The Input Hypothesis, the Monitor Hypothesis, the Natural-Order Hypothesis, the Acquisition-Learning Hypothesis, and the one we all seemed to like to discuss the most, the Affective-Filter Hypothesis. This hypothesis tells us that a student with a poor attitude toward the target language or toward speakers of that language will not progress as well as those with a positive attitude and high motivation, and we have labeled that student as having a ‘high’ affective filter. We have tried to come to an understanding of how the affective variables and factors work to hinder or facilitate language acquisition or learning. We studied the complex area of both facilitating anxiety that helps the adrenaline flow before a test, and the debilitating anxiety a student feels waiting to be called on in class. We have seen later how the existence of affective factors work to the improvement or detriment of second language learning and acquisition when we discussed Bernard Spolsky’s Model for second language learning. This model encapsulates this researcher’s theoretical views on the overall relationship between contextual factors, individual learner differences, learning opportunities, and learning outcomes and their connection to Mindfulness-Based Stress Reduction, as we will soon discuss in detail, (Mitchell, 2, 3). **Students, do you remember?**

It is in our interest to determine just what kinds of strategies are needed for second language communication and how we define a successful language learner. How is success measured? Is it measured by an entrance examination to the university or is it measured by the ability to function in specific language situations? We know that some students are quite good at achieving goals within the classroom but are not able to use the language outside the classroom. Many of you here today are no doubt those having received the highest of grades in study within the school context, but you also realize that those grades are not themselves a measure of one’s willingness to risk, using the language knowledge in situations where the goal is communication rather than passing an exam (Beebe, 31). So we have tried to determine just what a successful language learner is, and have come up with so many good answers over the years. Of course, motivation to communicate (in an intrinsic manner) and motivation to succeed in an exam (in an extrinsic manner) were high on our list.

It is generally thought that those who have a high desire to communicate, those who do not mind imitating native speakers, or those who do not hesitate to eventually sound foolish for their errors, will have more chances to succeed. It’s by making errors that one learns. However, we also know that empathy is a primary initiating factor, and we also know that those who are risk-takers often succeed in areas more related to communication skills and social interaction, but not necessarily linguistic accuracy (Beebe, 32). The implication in all of this is that since these are personality variables, external manipulation or intervention can somehow change them. Yet it is difficult, when dealing with the affective variables of those learning languages, to even begin

to think about changing personalities. For these reasons it is so difficult to find solid empirical evidence to help us determine what the elusive successful language learner is.

In sociolinguistics some of my favorite memories are lecturing students on William Labov, another of the great milestones in linguistics. It was he who has arguably been more influential than any other researcher in establishing the notion that languages vary systematically in accordance with the social characteristics of the speaker, and above all, how his work has influenced linguists to heed to systematically patterned variation. To collect his data, Labov often relied on his ‘danger of death’ question as a tool in his verbal task, knowing that it would cause the face to face interviewee to become quite emotional. Strong emotions are evoked by the question, “Have you ever been in a situation where you were in serious danger of being killed?” The resultant speech is in the vernacular, that is, the casual but systematic style which Labov claims the least amount of attention is paid to speech. **Don’t you remember this question, students?**

I remember one student who was reciting the answer in English and becoming quite emotional. Later, I told him to answer the question in Japanese, knowing that he was from Aomori. To bring Labov’s point across, we listened to him recount his emotional encounter with two members of the mafia and the fight that ensued behind a building. The scene was scary enough, and the student admitted that he could not help but revert a little to his Aomori dialect.

**And how many of you students remember,** when we listened to another lecture on speech accommodation, about all those descriptive labels that speech accommodation theorists, such as Howard Giles, use to describe different types of speech variation:

In *convergence*, speakers adjust their speech in order to become *more* similar to the speech of their interlocutor as in the example of Americans who drop the post vocalic “r” in “aren’t” or the “the” in “in the hospital (Beebe, 62).” Another example is somewhat easily understood. Some “Kansai-ben’ speakers going to Tokyo may try to speak standard dialect and *converge*. However, there is also the greater possibility that a Kansai dialect speaker does not wish to change his or her speech. This phenomenon is called *speech maintenance*.

In *divergence*, speakers adjust their speech in order to become *less* similar to the speech of their interlocutor. I am told that there are Canadian bilinguals in French and English who change their language when speaking to customers. In such a case, a French Canadian shopkeeper who is bilingual in French and English may respond in French to an English Canadian customer who addresses him or her in English.

Then there are more detailed labels: for example, *upward convergence* and *downward convergence*. Please imagine the situation when students take the interview to enter graduate school. The applicant converges toward the interviewers, the persons with higher status. This is *upward convergence*. Teachers may speak with their students “on their level,” that is, speaking ‘down’ to them, as an example of *downward convergence* (Beebe, 62).

Very often the speaker converges toward a stereotype or expected norm.

It is also noted that convergence results in approval from others, and the greater need for approval, the greater will be the tendency to converge (Beebe, 63).

Failure to converge or outright divergence might be perceived as hostile; thus, convergence, which usually brings with it social approval, is the expected behavior. There are times, however, when convergent acts do not entail a positive outcome. We can give as examples adolescents who frequently fail to converge toward the more standard language of their parents, and also an example of second language learners in Japan, who may find that the reward of being fluent in the target language is not worth the cost in lost identification and solidarity with their own native language group (e.g., katakana-English speakers in a native-speaker's class). From Howard Giles' speech accommodation research, and from William Labov, we can learn that there are no 'single-style speakers,' and that we all change our style of speech in response to social norms and the interlocutor, just as I am doing today, speaking here. **Students, can you remember?**

One thing we do know, however, and this is that ultimately it is better for a learner to learn in an atmosphere of calm and peace of mind. This is my third dimension and the main dimension. I would like to go with you now into this world of Neurolinguistics.

To rid not only the learner but also the teacher of the communication apprehension and anxiety, we need to turn to the area of neuropsychology and neurolinguistics concerned with teaching and learning. The alarming rise of classroom stress and teacher stress in all areas and all levels of education, including the university, fuels widespread problems, including poor academic achievement, anxiety, depression, school violence, and teacher burnout. How to reduce the stress that is so debilitating? How to lower the affective filter from a neurolinguistic perspective?

To help neutralize this stress, I propose to turn to some areas of neurolinguistics which have long been recognized as useful. We can surprisingly find that when imaging the brain, looking into the areas where our languages are being learned, that there is greater right-hemisphere involvement in processing languages that are learned informally or, conversely, greater left-hemisphere involvement in processing languages that are learned formally (Beebe, 90). This hypothesis is generally supported by the recent literature of studies in neurolinguistics, especially those studies appearing in James Austin's book, *Selfless Insight*. We know that the right side of the brain is specialized for attention (Austin, 47), and we may ask ourselves, why is the right side of the brain specialized for attention, whereas the left side is specialized for language? Austin has an answer to this. He tells us that neurobiologists might hypothesize that some survival advantage was associated with distributing two such vital functions on separate sides (47). In this way, they wouldn't interfere with each other locally. Our attention system remains watchfully alert. It is quick to respond physiologically to salient stimuli arriving unexpectedly from anywhere, on either the right side or the left side of the brain. And this processing takes place in the lower cortical regions

of the right cerebral hemisphere (Austin, 48).

Fred Genesee, from McGill University tells us that “new evidence suggests that the brain is much more malleable than previously thought.” Recent findings indicate that the specialized functions of specific regions of the brain are shaped by experience and learning. To use a computer analogy, we now think that the brain of young people is like a computer with incredibly sophisticated hardwiring, but no software. We think of “the software of the brain, like the software of desktop computers, as harnessing the exceptional processing capacity of the brain in the service of specialized functions, like learning a second language. All individuals have to acquire or develop their own software in order to harness the processing power of the brain with which they are born (www.cal.org).”

Again, referring to Genesee: “Our understanding of the brain is continually evolving. Thus our interpretation of the implications of findings from brain-based research for teaching and learning should also continually evolve. At present, brain research cannot prescribe what we should teach, or how we should organize complex sequences of teaching. Educators should not abandon their traditional sources of insight and guidance when it comes to planning effective instruction. They should continue to draw on and develop their own insights about learning based on their classroom experiences and classroom-based research to complement the insights that are emerging from advances in brain research (www.cal.org).”

What is most interesting (here is where I wish to help bring the East and the West closer together), is that these insights coming about from within the recent developments in the neurosciences, are profoundly congruent with the wisdom that has been developed over thousands of years in the contemplative traditions.

To demonstrate the malleableness of the brain, its neuroplasticity, and how language processing takes place, I would like you to go with me on a historical Neurolinguistic voyage, following together a PET (Positron Emission Tomography) scan by one of its inventors, Marcus E. Raichle, M.D. Professor of Radiology, Neurology Anatomy, and Neurobiology at Washington University, and his pioneering research in language processing in the brain.

<http://www.youtube.com/watch?v=5KXIDUo18aA&feature=related>

It has never been a better time and there has never been more scientific research for suggesting that we can have a huge role by training our mind and working with the body. We can have a great role in determining how our body actually behaves and how the quality of life can be influenced by that. In fact, we have probably learned more about the brain in the past twenty years than in all of recorded history (Alan Leshner in Hanson, 8).

For some of you in the audience, the word mindfulness may be new and I would like to explain

further.

Jon Kabat-Zinn, who introduced mindfulness into the mainstream of medicine some 30 years ago, tells us that we now know from this revolution in neuroplasticity that the old dogma in neuroscience was completely wrong and that the brain is actually continually changing itself, not only in terms of activity but also in structure on the basis of our experience. There are studies in literature just recently published by a neuroscientist named Sarah Lazar at Harvard University and the Massachusetts General Hospital showing that people who undergo eight weeks of training in MBSR (Mindfulness-Based-Stress Reduction) not only show differences in the activity of their brains in particular important regions for regulating emotions and the sense of well-being in the body, but also that the actual thickness of the cortex, the cerebral cortex in certain regions, gets thicker. It is an example, and one of many, of how the brain is actually changing its shape and size in different regions on the basis of this kind of repetitive training.

If we have a simple, scientifically proven, nonreligious technique for reducing stress, improving health, and developing a student's creative potential, or for that matter, a teacher's creative potential, then why not do it? If we have a chance to make prefrontal cortex areas bigger through Mindful-Based Stress Reduction, than why not do it? It has been shown that, as you become a happier person, the left frontal region of your brain, part of the prefrontal cortex, the CEO, the decider and the planner, becomes more active (Hanson, 5). And now we know from other researchers, recently among them, Dr. Fadel Zeidan, among many others, that cognition is improved by mindfulness.

Some of us need regular amounts of coffee or other chemical enhancers to make us cognitively sharper. A newly published study suggests perhaps a brief bit of mindfulness would prepare us just as well.

While past research using neuroimaging technology has shown that mindfulness techniques can promote significant changes in brain areas associated with concentration, it has always been assumed that extensive training was required to achieve this effect ([www.medicalnewstoday.com](http://www.medicalnewstoday.com)). But we now know that it can be accomplished in a short time, after four days of training for only twenty minutes each day.

In classes, we often try to fill the heads of our students. I would like to continue the discussion today on neurolinguistics by talking about the exact opposite of what we are “doing” to our students. Instead of going into classes, as teachers, with a sense of “doing” and filling their heads, I would like to propose that we not only ‘fill’ their heads, but also try to “clear” their heads, and decide to give students a sense of “being,” rather than a sense of “doing” or “having.” It need not be for a long time, but somehow we should give them adequate time to rest their minds, and replace their well-established sleeping habits by mindful attitudes, which will create a positive attitude toward learning; practicing being conscious of their “being” instead of sleeping. Incorporating this



into a curriculum is not easy, and I do not have any precise ideas on how to do it, but to explain its worth to you is already a step in the right direction. Building another small building on this campus? It cannot happen. But wouldn't it be wonderful if our college could find a place to install the first Mindful-Based Stress Reduction Center (MBSR) in Japan, in a non-religious setting.

I will stop dreaming now, and discuss another important aspect of mindfulness, one that is largely neglected in modern Japanese society. After more than 30 years since the inception of mindfulness in the health field in the U.S., the National Institute of Health (NIH) is funding it at high levels of research and there are exponential numbers of papers coming out year by year. Mindfulness has really become a field and it is participating in the way medicine is practiced, tapping into one's own deep interior resources for bettering one's health and improving one's brain.

Mindfulness is a form of "resting the mind" practice and it is about regulating how you pay attention. With mindfulness, you do not have to change your ideas or beliefs about anything. It really has to do with awareness, and it is the awareness that arises by paying attention on purpose in the present moment, and non-judgmentally. That is a little bit of a mouthful, but we are all capable of paying attention, and we can do it on purpose if we want to, and in the present moment. Actually, the present moment is the only time any of us are ever alive in. The more challenging part is the non-judgmental piece of it, because we have got ideas and opinions and reactive emotions around basically everything.

We could care less about what people's brain scans look like. The really important thing is how they are feeling or whether they are happy and leading satisfying lives.

We can also look at other recent developments in psychology and the neurosciences which have led to clear and powerful insights in neurolinguistics about how our brains work and how these neurological functions shape our language. These findings may have implications for language educators. For one thing, teachers can make a difference in brain development. Moreover, they should not give up on older language learners. There certainly would be a positive outcome if we could apply some of these insights to the language classroom, for example, teaching students about self-monitoring, regulating their attention span, controlling the flux of words, self-expression, meaningfulness, self-esteem, stress-reduction, and even, the enormous advantages of simply resting one's brain.

Supposedly, while Archimedes was taking a bath and resting his brain, he determined the principle of buoyancy leading to the discovery that a golden crown was not solid gold. As the story goes, Archimedes then took to the streets crying "Eureka!" meaning "I have found it!" There are few more relaxing spots to rest one's mind than the bath. It seems like it has been known for a long time that it is when you stop thinking, that inspiration comes.

We have some examples of how teaching mindfulness in schools is being dealt with in Australia. We are given this fact, concerning the advantages of mindfulness for young people.

“Technology has bombarded the mind of youth with a staggering 165,000 images per week in comparison to 1945 when there were 165,000 images presented to an individual in a complete lifetime (<http://business>).”

This increase in images may not be completely to the detriment of the brain, but it is obvious that the brain must take a rest from this onslaught. It has been said that we have more than 50,000 random thoughts entering our brain, consciously and unconsciously in a day.

No matter how many images are bombarded or how many random thoughts occur, the problem is we have not equipped our students to be able to filter all this information, retain what is needed and discard the rest. “We have not equipped students with the power to recognize and respect themselves amidst all of this spam being presented to their mind. Recognition of their own self worth, values and beliefs are the only consistent factor that they have available to them and we have failed to provide individuals with the skills to attain this stable environment. The following ‘Three R’s’ are delivered through mindfulness therapies in Australia, to those wanting to incorporate learning and self discipline into their life:

- ❖ Recognition and respect for themselves
- ❖ Respect for others
- ❖ Respect for their community at both micro and macro levels

“Will power and self discipline are the two most important and useful inner powers in everyone's life, and have always been considered as essential tools for success in all areas of life. They can be learned and developed like any other skill, yet, in spite of this, we have not taken specific steps to develop and strengthen them in our youth. Mindfulness tutors and trains these powers in students in a way that it becomes systematic for them, empowering the individual and creating a self-perpetuating life experience (<http://business>).”

I would like to finish my talk today by quoting two sources, Albert Einstein and Bertrand Russell. First, from Bertrand Russell's *An Outline of Intellectual Rubbish*:

“...If, like most of mankind, you have passionate convictions on many such matters, there are ways in which you can make yourself aware of your own bias. If an opinion contrary to your own makes you angry, that is a sign that you are subconsciously aware of having no good reason for thinking as you do. If someone maintains that two and two are five, or that Iceland is on the equator, you feel pity rather than anger, unless you know so little of arithmetic or geography that his opinion shakes your own contrary conviction. The most savage controversies are those about matters as to which there is no good evidence either way. Persecution is used in theology, not in arithmetic, because in arithmetic there is knowledge, but in theology there is only opinion. So

whenever you find yourself getting angry about a difference of opinion, be on your guard; you will probably find, on examination, that your belief is going beyond what the evidence warrants.”

And finally, at my age of 65, I would like to keep this quote by Albert Einstein, in my mind as I start a new life away from my full-time position:

No problem can be solved from the same consciousness that created it – we must learn to see the world anew.

---Albert Einstein (1879-1955)

When you change your brain, you change your life.

---Rick Hanson

**Students, do you remember? Students, will you remember?**

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